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Relevance scale ☐ ☐ ☐ ☐ ☐**1** [Increasing assignment motivation using a game AI tournament](#)

Øyvind Kolås, Ivar Farup

 June 2003 **ACM SIGCSE Bulletin**, **Proceedings of the 8th annual conference on Innovation and technology in computer science education ITICSE '03**,
 Volume 35 Issue 3
Publisher: ACM PressFull text available: pdf(173.38 KB) Additional Information: [full citation](#), [references](#), [citations](#)**2** [GPGPU: general purpose computation on graphics hardware](#)

David Luebke, Mark Harris, Jens Krüger, Tim Purcell, Naga Govindaraju, Ian Buck, Cliff Woolley, Aaron Lefohn

August 2004 **ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04****Publisher:** ACM PressFull text available: pdf(63.03 MB) Additional Information: [full citation](#), [abstract](#), [citations](#)

The graphics processor (GPU) on today's commodity video cards has evolved into an extremely powerful and flexible processor. The latest graphics architectures provide tremendous memory bandwidth and computational horsepower, with fully programmable vertex and pixel processing units that support vector operations up to full IEEE floating point precision. High level languages have emerged for graphics hardware, making this computational power accessible. Architecturally, GPUs are highly parallel s ...

3 [Courses: State of the art in interactive ray tracing](#)

Peter Shirley


July 2006 **Material presented at the ACM SIGGRAPH 2006 conference SIGGRAPH '06****Publisher:** ACM PressFull text available: pdf(14.08 MB) Additional Information: [full citation](#), [abstract](#)

Recent improvements in computer hardware have allowed ray tracing to be used in some interactive applications. The trends in architecture and expansions of geometric model should increase the use of interactive ray tracing. This course presents recent and often not-yet published work on interactive ray tracing.

4 [On randomization in sequential and distributed algorithms](#)

Rajiv Gupta, Scott A. Smolka, Shaji Bhaskar

March 1994 **ACM Computing Surveys (CSUR)**, Volume 26 Issue 1

Publisher: ACM PressFull text available:  pdf(8.01 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Probabilistic, or randomized, algorithms are fast becoming as commonplace as conventional deterministic algorithms. This survey presents five techniques that have been widely used in the design of randomized algorithms. These techniques are illustrated using 12 randomized algorithms—both sequential and distributed— that span a wide range of applications, including: primality testing (a classical problem in number theory), interactive probabilistic proofs ...

Keywords: Byzantine agreement, CSP, analysis of algorithms, computational complexity, dining philosophers problem, distributed algorithms, graph isomorphism, hashing, interactive probabilistic proof systems, leader election, message routing, nearest-neighbors problem, perfect hashing, primality testing, probabilistic techniques, randomized or probabilistic algorithms, randomized quicksort, sequential algorithms, transitive tournaments, universal hashing

5 Courses: Exploiting perception in high-fidelity virtual environments



Mashhuda Glencross, Alan G. Chalmers, Ming C. Lin, Miguel A. Otaduy, Diego Gutierrez
July 2006 **Material presented at the ACM SIGGRAPH 2006 conference SIGGRAPH '06**


Publisher: ACM PressFull text available:  pdf(5.25 MB)Additional Information: [full citation](#), [abstract](#)

This course introduces high-fidelity virtual environments and explains the key components required to build compelling environments. Then it details perceptually inspired techniques that facilitate high-fidelity rendering, collaboration, and complex interaction in these virtual environments. Particular emphasis is placed on real applications, with several live demonstrations.

6 Link and channel measurement: A simple mechanism for capturing and replaying wireless channels



Glenn Judd, Peter Steenkiste
August 2005 **Proceeding of the 2005 ACM SIGCOMM workshop on Experimental approaches to wireless network design and analysis E-WIND '05**

Publisher: ACM PressFull text available:  pdf(6.06 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


Physical layer wireless network emulation has the potential to be a powerful experimental tool. An important challenge in physical emulation, and traditional simulation, is to accurately model the wireless channel. In this paper we examine the possibility of using on-card signal strength measurements to capture wireless channel traces. A key advantage of this approach is the simplicity and ubiquity with which these measurements can be obtained since virtually all wireless devices provide the req ...

Keywords: channel capture, emulation, wireless

7 Control strategies for two-player games



Bruce Abramson
June 1989 **ACM Computing Surveys (CSUR)**, Volume 21 Issue 2

Publisher: ACM PressFull text available:  pdf(2.59 MB)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Computer games have been around for almost as long as computers. Most of these

games, however, have been designed in a rather ad hoc manner because many of their basic components have never been adequately defined. In this paper some deficiencies in the standard model of computer games, the minimax model, are pointed out and the issues that a general theory must address are outlined. Most of the discussion is done in the context of control strategies, or sets of criteria for move selection. ...

8 Session 6: Dynamic models of deliberation and the theory of games

Brian Skyrms

March 1990 **Proceedings of the 3rd conference on Theoretical aspects of reasoning about knowledge**

Publisher: Morgan Kaufmann Publishers Inc.

Full text available:  [pdf\(958.61 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Deliberation can be modeled as a dynamic process. Where deliberation generates new information relevant to the decision under consideration, a rational decision maker will (processing costs permitting) feed back that information and reconsider. A firm decision is reached at a fixed point of this process - a deliberational equilibrium. Although there may be many situations in which informational feedback may be neglected and an essentially static theory of deliberation will suffice, there are ...

9 A complete problem for statistical zero knowledge



Amit Sahai, Salil Vadhan

March 2003 **Journal of the ACM (JACM)**, Volume 50 Issue 2

Publisher: ACM Press

Full text available:  [pdf\(397.62 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present the first complete problem for SZK, the class of promise problems possessing statistical zero-knowledge proofs (against an honest verifier). The problem, called Statistical Difference, is to decide whether two efficiently samplable distributions are either statistically close or far apart. This gives a new characterization of SZK that makes *no reference to interaction or zero knowledge*. We propose the use of complete problems to unify and extend the study of statistical zero knowledge ...

Keywords: Knowledge complexity, proof systems, statistical difference, zero knowledge

10 Knowledge on the average—perfect, statistical and logarithmic



William Aiello, Mihir Bellare, Ramarathnam Venkatesan

May 1995 **Proceedings of the twenty-seventh annual ACM symposium on Theory of computing**

Publisher: ACM Press

Full text available:  [pdf\(1.18 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

11 Persistence, amortization and randomization

Paul F. Dietz, Rajeev Raman

March 1991 **Proceedings of the second annual ACM-SIAM symposium on Discrete algorithms**

Publisher: Society for Industrial and Applied Mathematics

Full text available:  [pdf\(1.19 MB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

12 Concurrent and resettable zero-knowledge in poly-logarithm rounds

Joe Kilian, Erez Petrank

**July 2001 Proceedings of the thirty-third annual ACM symposium on Theory of computing****Publisher:** ACM PressFull text available: pdf(291.48 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

A proof is concurrent zero-knowledge if it remains zero-knowledge when many copies of the proof are run in an asynchronous environment, such as the Internet. Richardson and Kilian have shown that there exists a concurrent zero-knowledge proof for any language in NP, but with round complexity polynomial in the maximum number of concurrent proofs. In this paper, we present a concurrent zero-knowledge proof for all languages in NP with a poly-logarithmic round complexity: spec ...

13 [Parallel Search of Strongly Ordered Game Trees](#)

T. A. Marsland, M. Campbell

December 1982 **ACM Computing Surveys (CSUR)**, Volume 14 Issue 4**Publisher:** ACM PressFull text available: pdf(1.55 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)**14 [Routing protocols: On designing incentive-compatible routing and forwarding protocols in wireless ad-hoc networks: an integrated approach using game theoretical and cryptographic techniques](#)**

Sheng Zhong, Li (Erran) Li, Yanbin Grace Liu, Yang (Richard) Yang

August 2005 **Proceedings of the 11th annual international conference on Mobile computing and networking MobiCom '05****Publisher:** ACM PressFull text available: pdf(367.19 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In many applications, wireless ad-hoc networks are formed by devices belonging to independent users. Therefore, a challenging problem is how to provide incentives to stimulate cooperation. In this paper, we study *ad-hoc games*---the routing and packet forwarding games in wireless ad-hoc networks. Unlike previous work which focuses either on routing or on forwarding, this paper investigates both routing and forwarding. We first uncover an impossibility result---there does not exist a protoc ...

Keywords: game theory, incentives, mechanism design, security, wireless ad-hoc network

15 [Game theory: Selfish caching in distributed systems: a game-theoretic analysis](#)

Byung-Gon Chun, Kamalika Chaudhuri, Hoeteck Wee, Marco Barreno, Christos H.

Papadimitriou, John Kubiawicz

July 2004 **Proceedings of the twenty-third annual ACM symposium on Principles of distributed computing****Publisher:** ACM PressFull text available: pdf(314.20 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We analyze replication of resources by server nodes that act selfishly, using a game-theoretic approach. We refer to this as the *selfish caching problem*. In our model, nodes incur either cost for replicating resources or cost for access to a remote replica. We show the existence of pure strategy Nash equilibria and investigate the price of anarchy, which is the relative cost of the lack of coordination. The price of anarchy can be high due to undersupply problems, but with certain network ...

Keywords: Nash equilibria, caching, distributed systems, game-theoretic models, peer-

to-peer systems, price of anarchy

16 Level set and PDE methods for computer graphics

 David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker
August 2004 **ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04**

Publisher: ACM Press

Full text available:  [pdf\(17.07 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#)

Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using partial differential equations to solve problems in computer graphics, geometric modeling and computer vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set eq ...

17 Session 3: Distributed streams algorithms for sliding windows

 Phillip B. Gibbons, Srikanta Tirthapura
August 2002 **Proceedings of the fourteenth annual ACM symposium on Parallel algorithms and architectures**

Publisher: ACM Press

Full text available:  [pdf\(229.67 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

This paper presents algorithms for estimating aggregate functions over a "sliding window" of the N most recent data items in one or more streams. Our results include:

- For a *single stream*, we present the first ϵ -approximation scheme for the number of 1's in a sliding window that is optimal in both worst case time and space. We also present the first ϵ for the sum of integers in $[0..R]$ in a sliding window that is optimal in both worst case time and ...

Keywords: data streams, distributed, sliding windows, waves

18 The MACSYMA system


 W. A. Martin, R. J. Fateman
March 1971 **Proceedings of the second ACM symposium on Symbolic and algebraic manipulation**

Publisher: ACM Press

Full text available:  [pdf\(1.72 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

MACSYMA is a system for symbolic manipulation of algebraic expressions which is being developed at Project MAC, M.I.T. This paper discusses its philosophy, goals, and current achievements. MACSYMA makes extensive use of the power of its rational function subsystem. The facilities derived from this are discussed in considerable detail.

19 Multiagent systems and electronic markets track: Practical secrecy-preserving, verifiably correct and trustworthy auctions

 D. C. Parkes, M. O. Rabin, S. M. Shieber, C. A. Thorpe
August 2006 **Proceedings of the 8th international conference on Electronic commerce: The new e-commerce: innovations for conquering current barriers, obstacles and limitations to conducting successful business on the internet ICEC '06**

Publisher: ACM Press

Full text available:  [pdf\(507.45 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

We present a practical system for conducting sealed-bid auctions that preserves the secrecy of the bids while providing for verifiable correctness and trustworthiness of the auction. The auctioneer must accept all bids submitted and follow the published rules of the auction. No party receives any useful information about bids before the auction closes and no bidder is able to change or repudiate her bid. Our solution uses Paillier's homomorphic encryption scheme [25] for zero knowledge proofs of ...

20 Analysis of the Search Performance of Coalesced Hashing



Jeffrey Scott Vitter

April 1983 **Journal of the ACM (JACM)**, Volume 30 Issue 2

Publisher: ACM Press

Full text available: pdf(1.28 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



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1 [Nash q-learning for general-sum stochastic games](#)

Junling Hu, Michael P. Wellman

 December 2003 **The Journal of Machine Learning Research**, Volume 4

Publisher: MIT Press

 Full text available: [pdf\(373.37 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

We extend Q-learning to a noncooperative multiagent context, using the framework of general-sum stochastic games. A learning agent maintains Q-functions over joint actions, and performs updates based on assuming Nash equilibrium behavior over the current Q-values. This learning protocol provably converges given certain restrictions on the stage games (defined by Q-values) that arise during learning. Experiments with a pair of two-player grid games suggest that such restrictions on the game struc ...

2 [Simple strategies for large zero-sum games with applications to complexity theory](#)

Richard J. Lipton, Neal E. Young

 May 1994 **Proceedings of the twenty-sixth annual ACM symposium on Theory of computing**

Publisher: ACM Press

 Full text available: [pdf\(719.83 KB\)](#) Additional Information: [full citation](#), [references](#), [citings](#), [index terms](#)

3 [Playing games in many possible worlds](#)

Matt Lepinski, David Liben-Nowell, Seth Gilbert, April Rasala Lehman

 June 2006 **Proceedings of the 7th ACM conference on Electronic commerce EC '06**

Publisher: ACM Press

 Full text available: [pdf\(242.62 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In traditional game theory, players are typically endowed with exogenously given knowledge of the structure of the game--either full omniscient knowledge or partial but fixed information. In real life, however, people are often unaware of the utility of taking a particular action until they perform research into its consequences. In this paper, we model this phenomenon. We imagine a player engaged in a question and- answer session, asking questions both about his or her own preferences and about ...

Keywords: Nash equilibria, algorithms, correlated equilibria, game theory, information acquisition, socratic games

4 Computing sequential equilibria for two-player games



Peter Bro Miltersen, Troels Bjerre Sørensen

January 2006 **Proceedings of the seventeenth annual ACM-SIAM symposium on Discrete algorithm SODA '06**

Publisher: ACM Press

Full text available: [pdf\(280.21 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

Koller, Megiddo and von Stengel showed how to efficiently compute minimax strategies for two-player extensive-form zero-sum games with imperfect information but perfect recall using linear programming and avoiding conversion to normal form. Koller and Pfeffer pointed out that the strategies obtained by the algorithm are not necessarily sequentially rational and that this deficiency is often problematic for the practical applications. We show how to remove this deficiency by modifying the linear ...

5 Fast algorithms for finding randomized strategies in game trees



Daphne Koller, Nimrod Megiddo, Bernhard von Stengel

May 1994 **Proceedings of the twenty-sixth annual ACM symposium on Theory of computing**

Publisher: ACM Press

Full text available: [pdf\(1.09 MB\)](#) Additional Information: [full citation](#), [references](#), [citings](#), [index terms](#)

6 Academic and administrative computing as zero- and nonzero-sum games



James W. Cerny

November 1980 **Proceedings of the 8th annual ACM SIGUCCS conference on User services**

Publisher: ACM Press

Full text available: [pdf\(220.12 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

There are many ways to deliver academic and administrative computer services. Some imply competition and some imply cooperation. It is useful to discuss and analyze these situations in game-theory terms. To illustrate such an analysis, data from the University of New Hampshire are used.

7 Matrix games in the multicast networks: maximum information flows with network switching

Xue-Bin Liang

June 2006 **IEEE/ACM Transactions on Networking (TON)**, Volume 14 Issue SI

Publisher: IEEE Press

Full text available: [pdf\(841.28 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Network coding for achieving the maximum information flow in the multicast networks has been proposed by Ahlswede, Cai, Li, and Yeung. They have demonstrated that the conventional network switching, without resort to network coding, is in general not able to achieve the optimum information flow that has been promised by network coding. A basic problem arising here is that, for a given multicast network, what is the switching gap of the network defined as the ratio of the maximum information flow ...

Keywords: achievable information rate regions, game theory, matrix games, max-flow min-cut theorems, maximum information flows, multicast routes, multisource multicast networks, network coding, network switching, route packings, set-covering problems, switching gaps

Coevolution: papers: The parallel Nash Memory for asymmetric games

Frans A. Oliehoek, Edwin D. de Jong, Nikos Vlassis

July 2006 **Proceedings of the 8th annual conference on Genetic and evolutionary computation GECCO '06****Publisher:** ACM PressFull text available: pdf(206.72 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Coevolutionary algorithms search for test cases as part of the search process. The resulting adaptive evaluation function takes away the need to define a fixed evaluation function, but may also be unstable and thereby prevent reliable progress. Recent work in coevolution has therefore focused on algorithms that guarantee progress with respect to a given solution concept. The Nash Memory archive guarantees monotonicity with respect to the game-theoretic solution concept of the Nash equilibrium, b ...

Keywords: Nash Memory, Nash equilibrium, coevolution, coevolution archive, game theory, monotonic progress

9

A polynomial-time nash equilibrium algorithm for repeated games

Michael L. Littman, Peter Stone

June 2003 **Proceedings of the 4th ACM conference on Electronic commerce****Publisher:** ACM PressFull text available: pdf(172.31 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

With the increasing reliance on game theory as a foundation for auctions and electronic commerce, efficient algorithms for computing equilibria in multiplayer general-sum games are of great theoretical and practical interest. The computational complexity of finding a Nash equilibrium for a one-shot bimatrix game is a well known open problem. This paper treats a closely related problem, that of finding a Nash equilibrium for an average-payoff phrepeated bimatrix game, and presents a polynomial-ti ...

Keywords: complexity analysis, computational game theory, nash equilibrium, repeated games

10

Cellular and hybrid networks: ARC: an integrated admission and rate control framework for CDMA data networks based on non-cooperative games

Haitao Lin, Mainak Chatterjee, Sajal K. Das, Kalyan Basu

September 2003 **Proceedings of the 9th annual international conference on Mobile computing and networking****Publisher:** ACM PressFull text available: pdf(345.66 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

The competition among wireless data service providers brings in an option for the customers to switch their providers, due to unsatisfactory service or otherwise. However, the existing resource management algorithms for wireless networks fail to fully capture the far-reaching impact of this *competitiveness*. From this perspective, we propose an integrated *admission and rate control* (ARC) framework for CDMA based wireless data networks. The admission control is at the *session* ...

Keywords: CDMA systems, admission control, non-cooperative games, rate control, wireless data networks

11

Computer science, games, and logic: Boolean games

Paul Harrenstein, Wiebe van der Hoek, John-Jules Meyer, Cees Witteveen
 July 2001 **Proceedings of the 8th conference on Theoretical aspects of rationality and knowledge**

Publisher: Morgan Kaufmann Publishers Inc.

Full text available:  pdf(740.37 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

In this paper Boolean games are introduced as a class of two-player zero-sum games along with a number of operations on them. We argue that Boolean games can be interpreted as modelling the information structures of two-person zero-sum games. As such they comprise games of imperfect information. The algebra of Boolean games $\langle \cdot \rangle$ modulo strategic equivalence is then proven to be isomorphic to the Lindenbaum algebra of Classical Propositional Logic. A neat match between the game-theor ...

Keywords: boolean algebra, classical propositional logic, determinacy, zero-sum games

12 Making games short (extended abstract)



Uriel Feige, Joe Kilian

May 1997 **Proceedings of the twenty-ninth annual ACM symposium on Theory of computing**

Publisher: ACM Press

Full text available:  pdf(1.69 MB) Additional Information: [full citation](#), [references](#), [index terms](#)

13 Workshop papers: Game theory perspectives on client: vendor relationships in offshore software outsourcing



Nilay V. Oza

May 2006 **Proceedings of the 2006 international workshop on Economics driven software engineering research EDSER '06**

Publisher: ACM Press

Full text available:  pdf(84.45 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The objective of this paper is to provide the initial literature based insights into the game theory specifically with the viewpoint of client - vendor relationships in offshore software outsourcing. Game theory has been used for long in understanding various contexts in economics and other disciplines. Offshore software outsourcing relates to the situation in which client and vendor are operating from different countries. Subsequently, in this paper, the initial understanding of game theory foc ...

Keywords: economics, game theory, software engineering, software outsourcing

14 Robust packet scheduling in wireless cellular networks

Xiaoqiao Meng, Zhenghua Fu, Songwu Lu

April 2004 **Mobile Networks and Applications**, Volume 9 Issue 2

Publisher: Kluwer Academic Publishers

Full text available:  pdf(175.30 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper addresses the following robust scheduling problem: Given that only coarse-grained channel state information (i.e., bounds on channel errors, but not the fine-grained error pattern) is available, how to design a robust scheduler that ensures worst-case optimal performance? To solve this problem, we consider two coarse-grained channel error models and take a zero-sum game theoretic approach, in which the scheduler and the channel error act as non-cooperative adversaries in the schedulin ...

Keywords: cellular networks, channel error, game theory, packet scheduling

15 Session 1B: Computing correlated equilibria in multi-player games

Christos H. Papadimitriou

May 2005 **Proceedings of the thirty-seventh annual ACM symposium on Theory of computing**

Publisher: ACM Press

Full text available: pdf(184.96 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We develop a polynomial-time algorithm for finding correlated equilibria (a well-studied notion of rationality due to Aumann that generalizes the Nash equilibrium) in a broad class of succinctly representable multiplayer games, encompassing essentially all known kinds, including all graphical games, polymatrix games, congestion games, scheduling games, local effect games, as well as several generalizations. Our algorithm is based on a variant of the existence proof due to Hart and Schmeidler [11 ...

16 Game theory: Completely fair SFE and coalition-safe cheap talk

Matt Lepinski, Silvio Micali, Chris Peikert, Abhi Shelat

July 2004 **Proceedings of the twenty-third annual ACM symposium on Principles of distributed computing**

Publisher: ACM Press

Full text available: pdf(248.65 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Secure function evaluation (SFE) enables a group of players, by themselves, to evaluate a function on private inputs as securely as if a trusted third party had done it for them. A *completely fair* SFE is a protocol in which, conceptually, the function values are learned *atomically*. We provide a completely fair SFE protocol which is secure for *any number* of malicious players, using a novel combination of computational and physical channel assumptions. We also show how co ...

Keywords: correlated equilibrium, game theory, mechanism design, secure function evaluation

17 Game theory, on-line prediction and boosting

Yoav Freund, Robert E. Schapire

January 1996 **Proceedings of the ninth annual conference on Computational learning theory**

Publisher: ACM Press

Full text available: pdf(805.19 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)18 Control strategies for two-player games

Bruce Abramson

June 1989 **ACM Computing Surveys (CSUR)**, Volume 21 Issue 2

Publisher: ACM Press

Full text available: pdf(2.59 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Computer games have been around for almost as long as computers. Most of these games, however, have been designed in a rather ad hoc manner because many of their basic components have never been adequately defined. In this paper some deficiencies in the standard model of computer games, the minimax model, are pointed out and the issues that a general theory must address are outlined. Most of the discussion is done in the context of control strategies, or sets of criteria for move selection. ...

19 Session 6: Dynamic models of deliberation and the theory of games

Brian Skyrms

March 1990 **Proceedings of the 3rd conference on Theoretical aspects of reasoning about knowledge****Publisher:** Morgan Kaufmann Publishers Inc.Full text available:  pdf(958.61 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

Deliberation can be modeled as a dynamic process. Where deliberation generates new information relevant to the decision under consideration, a rational decision maker will (processing costs permitting) feed back that information and reconsider. A firm decision is reached at a fixed point of this process - a deliberational equilibrium. Although there may be many situations in which informational feedback may be neglected and an essentially static theory of deliberation will suffice, there are ...

20 Playing large games using simple strategies

Richard J. Lipton, Evangelos Markakis, Aranyak Mehta

June 2003 **Proceedings of the 4th ACM conference on Electronic commerce****Publisher:** ACM PressFull text available:  pdf(186.64 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We prove the existence of ϵ -Nash equilibrium strategies with support logarithmic in the number of pure strategies. We also show that the payoffs to all players in any (exact) Nash equilibrium can be ϵ -approximated by the payoffs to the players in some such logarithmic support ϵ -Nash equilibrium. These strategies are also uniform on a multiset of logarithmic size and therefore this leads to a quasi-polynomial algorithm for computing an ϵ -Nash equilibrium. To our knowledge this ...

Keywords: nash equilibrium, probabilistic method

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